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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,789	10/05/2004	Kun-Yi Chan	MTKP0178USA	5788

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EXAMINER	
WYATT, KEVIN S	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 06/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,789	CHAN ET AL.	
	Examiner	Art Unit	
	Kevin Wyatt	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-12,14,16-21 and 23-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12,14,16-21 and 23-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment after non-final and remarks filed on 04/10/2006. Currently, claims 1,3-12, 14, 16-21, 23-26 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-6, and 10, 14, 16-18, and 20-21, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Publication No. U.S. 20040079864 A1) in view of Hawryluk (U.S. Patent No. 6,303,917 B1).

Regarding claim 1, Suzuki shows in Fig. 1 a light emitting device calibration system comprising: a device under test (combination of LD (3), and driver (13)) to be calibrated; and a first microprocessor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6) electrically coupled to the light emitting device for determining a calibration mode controlling power of the light emitting device by changing values of a drive signal to the light emitting device (paragraph 0044, lines 1-17), receiving a power indication corresponding to light emitted by the light emitting device (paragraph 0028, lines 10-15), and determining a power relationship relating values of the drive signal to powers of the light emitting device according to a power indication for each of a plurality of values of the drive signal (paragraph 0037, lines 8-16); and a light detector (PD4, i.e.,

photodetector) coupled to the device under test (combination of LD (3), and driver (13)) for detecting the light emitted by the light emitting device to generate the power indication corresponding to the light emitted by the light emitting device (paragraph 0028, lines 10-15). Suzuki does not disclose a non-volatile memory for storing the power relationship determined by the first microprocessor during the calibration mode, the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. Hawryluk shows in Fig. 3, a non-volatile memory (27, i.e., memory) for storing the power relationship determined by the first microprocessor (combination of processor (26), and A/D converter (31)) during the calibration mode (col. 9, lines 28-35), the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. It would have been obvious to one skilled in the art to provide the non-volatile memory of Hawryluk to the device of Suzuki for the purpose of storing control instructions (for device operation) and sample data for calculations.

Regarding claims 4-6, and 10, Suzuki discloses the claimed invention as stated above. In addition, Suzuki shows in Fig. 1, that the light detector (PD4, i.e., photodetector) is a power meter having a photo sensor for receiving the light emitted by the light emitting device, and the power meter outputs an analog signal corresponding to an intensity of the light received at the photo sensor (paragraph 0033, lines 1-4) in accordance with claim 4. Also, Suzuki discloses that a signal calibration circuit (combination of first SEL (8), second SEL (11), amplification circuit (10), and efficiency

calculation section (12)) coupled between the device under test (combination of LD (3), and driver (13)) and the power meter, the signal calibration circuit for receiving the analog signal outputted by the power meter and outputting the power indication having an inverse relationship (Performance = (*P2* - *P1*)/(*IP2* - *IP1*) or *IP3* = *IP1* + (*P3* - *IP1*)/ Performance) with the analog signal (paragraph 0052, lines 1-11) in accordance with claim 6. Suzuki does not disclose that the first microprocessor is directly coupled to the power meter and includes an analog to digital converter for converting the analog signal to a digital value as recited in claim 5. In addition, Suzuki does not disclose that the light detector is a power meter having a photo sensor for receiving the light emitted by the light emitting device, and the power meter outputs a digital value as the power indication as recited in claim 10. Hawryluk shows in Fig. 3 that the first microprocessor (combination of processor (26), and A/D converter (31)) is directly coupled to the power meter and includes an analog to digital converter (31, i.e., A/D converter) for converting the analog signal to a digital value (col. 6, lines 37-40) in accordance with claim 5. Hawryluk shows in Fig. 3, the light detector (19, i.e., energy sensor) is a power meter having a photo sensor for receiving the light emitted by the light emitting device, and the power meter outputs a digital value as the power indication (col. 6, lines 30-40) in accordance with claim 10. Suzuki does not disclose a non-volatile memory for storing the power relationship determined by the first microprocessor during the calibration mode, the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. Hawryluk shows in Fig. 3, a non-volatile memory (27, i.e., memory)

for storing the power relationship determined by the first microprocessor (combination of processor (26), and A/D converter (31)) during the calibration mode (col. 9, lines 28-35), the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. It would have been obvious to one skilled in the art to provide the non-volatile memory of Hawryluk to the device of Suzuki for the purpose of storing control instructions (for device operation) and sample data for calculations.

Regarding claim 14, Suzuki shows in Fig. 1 a method of light emitting device calibration, the method comprising: providing a device under test (combination of LD (3), and driver (13)) having a light emitting device (LD 3, i.e., laser diode) to be calibrated and a first microprocessor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6); providing a light detector (PD4, i.e., photodetector); controlling power of the light emitting device (LD 3, i.e., laser diode) using the first microprocessor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6) by changing values of a drive signal to the light emitting device (paragraph 0044, lines 1-17); detecting light emitted by the light emitting device and generating a power indication corresponding to light emitted by the light emitting device using the light detector (paragraph 0028, lines 10-15); receiving the power indication using the first microprocessor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6) (paragraph 0028, lines 10-15); and determining a power relationship relating values of the drive signal to powers of the light emitting device using the first microprocessor according power to the indication for a plurality of values of the drive signal (paragraph 0037, lines 8-16). Suzuki does not

disclose a non-volatile memory for storing the power relationship determined by the first microprocessor during the calibration mode, the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. Hawryluk shows in Fig. 3, a non-volatile memory (27, i.e., memory) for storing the power relationship determined by the first microprocessor (combination of processor (26), and A/D converter (31)) during the calibration mode (col. 9, lines 28-35), the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. It would have been obvious to one skilled in the art to provide the non-volatile memory of Hawryluk to the device of Suzuki for the purpose of storing control instructions (for device operation) and sample data for calculations.

Regarding claims 16 and 18, Suzuki discloses the claimed invention as stated above. In addition, Suzuki discloses a method wherein the light detector is a power meter (PD4, i.e., photodetector) having a photo sensor for receiving the light emitted by the light emitting device (PD3, i.e., laser diode), and the method further includes outputting an analog signal from the power meter corresponding to an intensity of the light received at the photo sensor (paragraph 0033, lines 1-4) in accordance with claim 16. Suzuki further discloses a method comprising coupling a signal calibration circuit (combination of first SEL (8), second SEL (11), amplification circuit (10), and efficiency calculation section (12)) coupled between the device under test (combination of LD (3), and driver (13)) and the power meter, the signal calibration circuit for receiving the

analog signal outputted by the power meter and outputting the power indication having an inverse relationship (Performance = (*P2 - P1*)/(*IP2 - IP1*) or *IP3* = *IP1* + (*P3 - IP1*)/ Performance) with the analog signal (paragraph 0052, lines 1-11) in accordance with claim 18. Suzuki does not disclose a non-volatile memory for storing the power relationship determined by the first microprocessor during the calibration mode, the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. Hawryluk shows in Fig. 3, a non-volatile memory (27, i.e., memory) for storing the power relationship determined by the first microprocessor (combination of processor (26), and A/D converter (31)) during the calibration mode (col. 9, lines 28-35), the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device. It would have been obvious to one skilled in the art to provide the non-volatile memory of Hawryluk to the device of Suzuki for the purpose of storing control instructions (for device operation) and sample data for calculations.

Regarding claim 3, the modified device of Suzuki discloses the claimed invention as stated above. The modified device of Suzuki does not disclose that the non-volatile memory is EEPROM or FLASH. However, utilizing EEPROM, FLASH or other forms of non-volatile memory in signal and microprcessing applications is well known in the art. It would be obvious to one skilled in the art to provide non-volatile memory in the form of EEPROM or FLASH to the modified device of Suzuki for the purpose of storing electronic instructions (paragraph 0059, lines 15-22).

Regarding claim 17, the modified device of Suzuki shows in Fig 1, directly coupling the first microprocessor to the power meter. The modified device of Suzuki does not disclose a method comprising performing an analog to digital conversion within the first microprocessor for converting the analog signal to a digital value as recited in claim 17. Hawryluk discloses performing an analog to digital conversion within the first microprocessor (combination of processor (26), and A/D converter (31)) for converting the analog signal to a digital value. It would have been obvious to one skilled in the art to provide the A/D converter (31) of Hawryluk to the modified device of Suzuki for the purpose of providing a digital signal for microprocessing functions.

Regarding claim 20, the modified device of Suzuki discloses the claimed invention as stated above. The modified device of Suzuki does not disclose a method comprising coupling a second microprocessor between the device under test and the light detector, performing an analog to digital conversion within the second microprocessor for converting the analog signal outputted by the power meter to a digital value corresponding to the analog signal, and output the power indication corresponding to the digital value from the second microprocessor to the first microprocessor. Hawryluk shows in Fig. 3 a method comprising coupling a second microprocessor (combination of A/D converter (21) and processor (26)) between the device under test (11, i.e., radiant energy source) and the light detector (19, i.e., energy sensor), performing an analog to digital conversion within the second microprocessor for converting the analog signal (20, i.e., sensor signal) outputted by the power meter (19, i.e., energy sensor) to a digital value corresponding to the analog signal, and output

the power indication corresponding to the digital value from the second microprocessor to the first microprocessor (col. 7, lines 31-40 and col. 10, lines 8-13). It would have been obvious to one skilled in the art to provide the second microprocessor of Hawryluk to the modified device of Suzuki for the purpose of digitally processing data converted from signal output.

Regarding claim 21, the modified device of Suzuki does not disclose a method further comprising receiving the light emitted by the light emitting device at the photo sensor and outputting a digital value as the power indication. Hawryluk shows in Fig. 3 and 6 a method wherein the light detector (19, i.e., energy sensor) is a power meter having a photo sensor, and the method further comprises receiving the light emitted by the light emitting device at the photo sensor and outputting a digital value via the second microprocessor as the power indication (col. 6, lines 41-44). It would have been obvious to one skilled in the art to provide the second microprocessor of Hawryluk to the modified device of Suzuki for the purpose of digitally processing data converted from signal output.

Regarding claim 23, Suzuki discloses a system for calibrating an optical disk drive, the optical disk drive including a first processor, light emitting device (LD3, laser diode), the system comprising: a light detector (PD4, i.e., photodiode) coupled to the optical disc drive for detecting light emitted by the light emitting device and generating a power indication corresponding to the light emitted by the light emitting device (paragraph 003, lines 1-4); wherein during a calibration mode the first processor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6) is for controlling power of

the light emitting device by changing a drive signal to the light emitting device, receiving the power indication corresponding to the light emitted by the light emitting device (LD3, laser diode), determining a power relationship of the drive signal to powers of the light emitting device according to the power indication for each of a plurality of values of the drive signal (Performance = (*P2 - P1*)/(*IP2 - IP1*) or *IP3 = IP1* + (*P3 - IP1*)/ Performance). Suzuki does not disclose a non-volatile memory in which the system stores a power relationship, utilized by the first processor. Hawryluk shows in Fig. 1, a system that stores a power relationship in the nonvolatile memory (27), utilized by the first processor (col. 6, lines 65-66, and col. 7, lines 1-4). It would have been obvious to one skilled in the art to provide the non-volatile memory of Hawryluk to the device of Suzuki for the purpose of storing control instructions (for device operation) and sample data for calculations.

Regarding claims 24-25, Suzuki discloses the claimed invention as stated above. In addition, Suzuki discloses a light detector that includes a photo sensor (PD4, i.e., photodiode) for receiving the light emitted by the light emitting device (LD4, i.e., laser diode), and analog output (via LPF (7)) for generating an analog signal corresponding to an intensity of the light receiving at the photo sensor (paragraph 0033, lines 1-3), in accordance with claim 24. In addition, Suzuki discloses a signal calibration circuit coupled between the optical disc drive and the light detector, the signal calibration circuit for receiving the analog signal outputted by the light detector and generating the power indication having an inverse relationship with the analog signal in accordance with claim 25. Suzuki does not disclose a non-volatile memory in which the system

stores a power relationship, utilized by the first processor. Hawryluk shows in Fig. 1, a system that stores a power relationship in the nonvolatile memory (27), utilized by the first processor (col. 6, lines 65-66, and col. 7, lines 1-4). It would have been obvious to one skilled in the art to provide the non-volatile memory of Hawryluk to the device of Suzuki for the purpose of storing control instructions (for device operation) and sample data for calculations.

4. Claims 8-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Publication No. U.S. 20040079864 A1) as applied to claims 1, 3-6, 8, and 10-12, 14,16-18, and 20-21 above, and further in view of Kawakami (Publication No. U.S. 2003/0235126 A1).

Regarding claims 8-9 and 11-12, the modified device of Suzuki discloses the claimed invention as stated above. The modified device of Suzuki does not disclose that the first microprocessor includes a digital interface complying with a transmission standard and that the power indication complies with the transmission standard as recited in claims 8 and 11. In addition, the modified device of Suzuki does not disclose that the transmission standard is RS-232 or USB as recited in claims 9 and 12. Kawakami shows in Fig. 16 a digital interface (combination of usb hub (7) and usb interface (6 or 8)) complying with a transmission standard, in accordance with claims 8-9 and 11-12. It would have been obvious to one skilled in the art to provide the digital interface of Kawakami to the modified device of Suzuki for the purpose of providing a safe means for data transfer and retrieval.

5. Claims 7, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Suzuki (Publication No. U.S. 20040079864 A1) as applied to claims 1, 3-6, 8, and 10-12, 14,16-18, and 20-21 above, and further in view of in view of Sasaki (U.S. Patent No. 5,040,163).

Regarding claims 7,19, and 26, Suzuki discloses the claimed invention as stated above. Suzuki does not disclose an operational amplifier having an inverting terminal, a non-inverting terminal, and an output terminal, wherein the output terminal is for outputting the power indication; a voltage reference source of a predetermined voltage value coupled to the non-inverting terminal; a first resistor having a first end coupled to the analog signal outputted by the power meter, and a second end coupled to the inverting terminal, and a second resistor having a first end coupled to the inverting terminal, and a second end coupled to the output terminal. Sasaki shows in Fig. 2, a laser beam control circuit comprising: an operational amplifier (19) having an inverting terminal, a non-inverting terminal, and an output terminal, wherein the output terminal is for outputting the power indication; a voltage reference source (13, terminal) of a predetermined voltage value coupled to the non-inverting terminal; a first resistor (VR_1) having a first end coupled to the analog signal outputted by the power meter, and a second end coupled to the inverting terminal, and a second resistor (connected across amplifier (19) having a first end coupled to the inverting terminal, and a second end coupled to the output terminal. It would have been obvious to one skilled in the art to provide the laser beam control circuit of Sasaki to the device of Suzuki for the purpose of providing additional stability to the laser diode.

Response to Arguments

6. Applicant's arguments filed 04/10/2006 have been fully considered but they are not persuasive.

In response to applicants arguments that a) Hawryluk does not teach or suggest that the device under test is an optical disc drive and the light emitting device is a laser diode, and that the limitations of claim 22 was not found to be anticipated by Hawryluk, and b) Suzuki does not teach or suggest a non-volatile memory for storing the power relationship, and that the limitations of claims 2 and 15 are not found in Suzuki, the rejections of all claims affected by these amendments have been readdressed. Therefore amending of claims 1 and 14 in addition to the new claims 23-26, were not sufficient to overcome the 103 rejections of Suzuki, Hawryluk, Sasaki and Kawakami.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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